Overview of Water Monitoring Plan in Response to the Gulf of Mexico

EPA's Current Sampling Objectives:

1. Establish pre-impact or background conditions. Future monitoring will assess the impact of the spill and phase in additional information on sediments and fish. EPA is focused on reporting oil-related contaminants (Volatile Organic Compounds, Semi-Volatile Organic Compounds, PAHs, and heavy metals).

2. Sampling locations include targeted sites identified as likely to be impacted by the spill and also a subset of National Coastal Condition Assessment (NCCA) sites.

3. The initiation and frequency of post-impact sampling will depend on when oil is anticipated to reach near-shore areas. We will also rely on other information provided by the Unified Command and other federal agencies, such as NOAA and USGS. The Regions have recently submitted a draft post-impact sampling plan for near-shore, offshore, and deep Gulf sampling.

Types of Samples and Compounds (and who is taking the samples):

1. One-time, near-shore, pre-spill surface water samples
   a. Collection: EPA and EPA contractors are collecting grab samples of water and sediment from near-shore areas. Multiple project teams have been deployed to multiple locations collecting surface water and sediment samples and collecting real-time water data utilizing multi-parameter water quality instruments. Additional sampling, to determine the presence of free oil globules and/or surface oil at near-shore surface water locations (i.e. within 100 feet of the shoreline), was conducted to characterize the oil and dispersant mixture that is reaching the shoreline. Further sampling along beaches, marshes, tidal flats, or other shoreline types was conducted to collect samples of fresh oil, mousse, tar, tarballs, and tar patties that had accumulated as part of the oil release. Samples are being analyzed for VOCs, SVOCs, metals (including mercury), TPH, oil and grease, toxicity in sediments, and total organic carbon.

      Region 6 is collecting surface water samples daily at targeted near-shore locations to establish pre-spill conditions. These baseline samples are being collected at different Louisiana locations, including west of the Mississippi Delta.

      Region 4 concluded collecting baseline samples as of May 6, 2010. Baseline samples were collected from targeted sites from Mississippi, Alabama, and Florida.

b. Instrumentation: Commercially-manufactured and EPA-approved Federal Reference Methods or Federal Equivalent Methods sampling per EPA guidance and rules.
    i. Inductively Coupled Plasma
    ii. Gas Chromatography Mass Spectrometry
    iii. Gas Chromatography Flame Ionization Detection
    iv. Cold Vapor Atomic Absorption Spectrometry

c. Analysis: Water samples are analyzed for oil-related chemical contaminants: Volatile Organic Compounds (e.g., toluene), Semi-Volatile Organic Compounds (e.g., phenol), Polycyclic Aromatic Hydrocarbons (e.g., benzo(a)pyrene), and Heavy Metals (e.g., Nickel). Future sampling will include parameters related to dispersants and alkylated PAHs. Toxicity testing will be included post-impact. The NCCA sampling will also include collection and analysis of contaminants in fish. Each chemical contaminant group requires a separate analytical method.

d. Detection Limits, varies by pollutant:
    i. VOCs: 0.41-9.9 ug/L
    ii. SVOCs (including PAHs): 0.041-6.7 ug/L
    iii. Metals: 0.0002-0.017 mg/L

e. Data turnaround time (total time 5-8 days):
    i. Collection time and ship to lab: 24 hours
    ii. Lab Analysis, varies by pollutant: 24-72 hours
    iii. Quality Assurance Review within lab: 24-48 hours
    iv. Lab sends results to Regional SCRIBE database and Regional Review: 24 hours
    v. HQ Contractors pull from SCRIBE.net, Office of Water reviews data and coordinates with PIO to post data to epa.gov/bpspill: 24 hours

2. Thresholds: The Office of Water compares the data for a list of 30 oil-related chemical contaminants against established Agency benchmarks, including:

a) EPA Clean Water Act Section 304(a) criteria and EPA's Draft Equilibrium Partitioning Sediment Benchmarks

b) When established EPA 304(a) criteria are not available, EPA calculates new screening benchmarks following one of three derivation methods:
    i. Ecotox Thresholds from the USEPA Superfund program
    ii. USEPA 304a criteria, 1985 Guidelines
    iii. USEPA Great Lakes Initiative Tier II Methodology.

iv. Baseline data from past NCCA (sampling 2000-2006) and post-Hurricane Katrina Sampling.

v. The Office of Water also compares water quality data against 304(a)-derived human health criteria.

Status of Results – Data Collection and Reporting Information

The Regional data on the EPA spill response website are current through the following dates as of COB May 17th.

Region 4:

- Pre-impact water sampling for VOCs, SVOCs, HM, and PAH were reported online for April 30-May 6.
- There were no values which exceeded EPA aquatic life or human health thresholds for contaminants related to oil.

Region 6:

- Pre-impact water sampling for VOCs, SVOCs, HM, and PAH were reported online for April 30-May 12.
- There were no values which exceeded EPA aquatic life or human health thresholds for contaminants related to oil.

Qualitative Description of What We Know

We do not expect to find significant levels of VOCs, SVOCs, metals, PAHs or other parameters in any baseline, pre-impact water sampling. We have not seen any incremental levels of these substances over our benchmarks.

Qualitative Description of What We Don't Know

We do not know when the oil/dispersant plume will reach the estuaries and shoreline. Additionally, we do not know if the dispersants will reach shore.

We do not know the target analytes for the dispersant, nor the methods needed to analyze samples. Thus, we also do not know the exact amount of time that would be required to analyze and conduct QA/QC.